IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Re:	Application of:	Jean-Luc VERON
	Serial No.:	10/574,057
	Filed:	March 29, 2006
	For:	**A METHOD AND A DEVICE FOR PACKAGING LEAKY NUCLEAR FUEL RODS FOR THE PURPOSES OF TRANSPORT AND LONG-DURATION STORAGE OR WAREHOUSING**
	Art Unit:	3663
	Examiner:	Johannes P. Mondt

Mail Stop: APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

August 25, 2011

APPELLANT'S BRIEF UNDER 37 C.F.R. § 41.37

Sir:

Appellant submits this brief for the consideration of the Board of Patent Appeals and Interferences (the "Board") in support of their appeal of the Advisory Action dated April 19, 2011 and the Final Office Action dated January 4, 2011 in this application. The statutory fee of $540.00 is submitted concurrently herewith. If any additional fees are deemed to be due at this time, the Assistant Commissioner is authorized to charge payment of the same to Deposit Account No. 50-0552.

1. REAL PARTY IN INTEREST

The real party in interest is AREVA NP, a French corporation having a place of business in Courbevoie, France, and the assignee of the entire right, title and interest in the above-identified patent application. The invention was assigned to AREVA NP by an assignment originating from inventor Jean-Luc Veron, on March 29, 2006 at reel 017748, frame 0322.

2. RELATED APPEALS AND INTERFERENCES

Appellants, their legal representatives, and assignee are not aware of any appeal or interference that directly affects, will be directly affected by, or will have a bearing on the Board's decision in this appeal.

3. STATUS OF CLAIMS

Claims 23 to 25 and 30 to 34 are pending in the application. Claims 23 to 25 and 30 to 34 were rejected in the Final Office Action dated January 4, 2011. Claims 1 to 22 were canceled in a Preliminary Amendment filed on March 29, 2006. Claims 26 to 29 were canceled in a response dated September 3, 2009.

The rejections to claims 23 to 25 and 30 to 34 thus are appealed. A copy of appealed claims 23 to 25 and 30 to 34 is attached hereto as Appendix A.

4. STATUS OF AMENDMENTS

Amendments were filed in the response to the Final Office Action dated January 4, 2011. The amendments were not entered. No additional amendments have been filed subsequent to the response to the January 4, 2011 Final Office Action.

5. SUMMARY OF THE CLAIMED SUBJECT MATTER

Independent claim 23 recites a method of packaging leaky fuel rods for transport and subsequent storage of at least 50 years (for example, Substitute Specification page 4, lines 6 to 15 and page 5, lines 6 to 7), each leaky fuel rod containing pellets of fuel material in tubular cladding and being closed at ends of the tubular cladding (for example, Substitute Specification page 9, lines 24 to 27; for example, fuel rod 6, tubular cladding 6a and closure plugs 7 in Fig. 1) and presenting a sealing defect (for example, Substitute Specification page 10, lines 1 to 8), each leaky fuel rod coming from at least one fuel assembly and being deposited in a first step underwater in a pool (for example, Substitute Specification page 10, lines 16 to 22; for example, pool 100 in Fig. 7), the method comprising: making available a plurality of capsules, each of the plurality of capsules for receiving one of the leaky fuel rods (for example, Substitute Specification page 10, lines 24 to 27), and each of the plurality of capsules including a tubular sheath and two end plugs (for example, Substitute Specification page 10, line 29 to page 11, line 4 and page 11, lines 24 to 25; for example, capsule 8, tubular body 8a, bottom plug 9 and top plug 14 in Figs. 2 and 3), at least one of the two end plugs being removable (for example, Substitute Specification page 11, lines 24 to 25), each of the plurality of capsules having a longitudinal axis (for example, Fig. 3); placing a loading structure in the pool (for example, Substitute Specification page 4, line 22 and page 16, lines 25 to 27; for example, support structure 20 in Fig. 4), the loading structure having a plurality of locations, each location being capable of receiving one of the plurality of capsules so that the longitudinal axes of the plurality of capsules are in a vertical orientation (for example, Substitute Specification page 5, line 24 to page 6, line 2, page 8, lines 5 to 7 and page 14, lines 13 to 19; for example, structure 20, capsule 8, top nozzle 21a and bottom nozzle 21b in Fig. 4 and "array of storage locations" in Fig. 5), the loading structure having an open top end (for example, Substitute Specification page 4, lines 25 to 26 and page 13, lines 16 to 20; for example, Figs. 4 and 5); securing, on the open top end, a device for loading (for example, page 15, lines 4 to 8; for example, guide and holder device 32 placed in structure 20 in Figs. 4, 5 and 6) one of the leaky fuel rods into the at least one capsule, the device for loading having an opening (for example, page 15, lines 9 to 16; for example, openings 34a and b in Fig. 6) and a guide device capable of being placed at the opening (for example, Substitute Specification page 17, lines 5 to 9); inserting the leaky fuel rods in the pool

one by one into empty ones of the plurality of capsules in the loading structure at at least one loading location of the plurality of locations (for example, Substitute Specification page 4, lines 29 to 33, page 6, lines 34 to 37, page 8, lines 5 to 7 and page 17, lines 22 to 27), the inserting for each leaky fuel rod including: unscrewing one of the end plugs of a respective capsule of the plurality of capsules, the end plug being situated at a capsule top end (for example, Substitute Specification page 4, lines 36 to 37 and page 17, lines 13 to 16); placing the leaky fuel rod into the respective capsule via the guide device (for example, Substitute Specification page 5, lines 1 to 2 and page 17, lines 25 to 27); and screwing the one end plug at the top end of the capsule back into place (for example, Substitute Specification page 5, line 3 and page 18, lines 1 to 3); moving each capsule containing the leaky fuel rod from the at least one loading location to another location of the plurality of locations of the loading structure different from the at least one loading location (for example, Substitute Specification page 6, lines 11 to 15 and page 18, lines 5 to 8 and 29 to 30); and transporting and storing the capsules containing the leaky fuel rods (for example, Substitute Specification page 5, lines 7 to 8 and page 19, lines 1 to 2).

Dependent claim 24 recites the method according to claim 23, wherein the loading structure comprises a handling top nozzle and a bottom nozzle both extending transversely (for example, Substitute Specification page 5, lines 24 to 27 and page 13, lines 6 to 9; for example, structure 20, top nozzle 21a and bottom nozzle 21b in Fig. 4), the nozzles being assembled to each other by longitudinally-extending tie-bars (for example, Substitute Specification page 5, lines 27 to 28 and page 13, lines 20 to 30; for example, tie bar 23, top nozzle 21a and bottom nozzle 21b in Fig. 4), together with a plurality of transversely-extending spacer plates distributed in the longitudinal direction of the loading structure and each comprising an array of openings (for example, Substitute Specification page 5, lines 27 to 31 and page 13, lines 31 to 36; for example, structure 20 and spacer plates 25 in Fig. 4), the array of openings including first openings serving to pass and hold a respective capsule, the array of openings also including second openings having engaged therein the tie-bars (for example, Substitute Specification page 13, lines 31 to 37), the loading structure including a first location for loading capsules in a vicinity of a corner of a square-shaped cross-section of the loading structure (for example,

Substitute Specification page 5, lines 34 to 37 and page 14, lines 13 to 16; for example, location 27a in Fig. 5).

Dependent claim 25 recites the method according to claim 24, wherein the loading structure further comprises a second location in which the bottom nozzle of the loading structure includes an opening for receiving a closure plug at the bottom end of the respective capsule (for example, Substitute Specification page 6, lines 1 to 4 and page 14, lines 20 to 21; for example, location 27b, bottom nozzle 21b, opening 29, bottom plugs 9 and capsule 8 in Fig. 5), the location having placed therein a peg projecting into the loading structure (for example, Substitute Specification page 6, lines 4 to 5 and page 14, lines 30 to 31; for example, location 27b, bottom nozzle 21b and peg 31 in Fig. 5), wherein the bottom plugs and top plugs of the capsules are pierced axially by respective channels having respective channel-closure valves located therein and urged towards a closed position by respective helical springs (for example, Substitute Specification page 6, lines 6 to 9, page 11, lines 6 to 22 and page 12, lines 9 to 23; for example, capsules 8, valves 10, 17 and helical springs 11, 18 in Fig. 3), an open end of the channel in the top plug including an arrangement for connection to a duct for feeding inert gas (for example, Substitute Specification page 6, lines 9 to 11 and page 12, lines 25 to 31; for example, channel 16, top plug 14 and duct 15b in Fig. 3), and wherein after a leaky fuel rod has been inserted in a capsule and the top plug has been screwed back onto the capsule in the loading structure first location, the capsule is transferred to the second location for filling with inert gas (for example, Substitute Specification page 6, lines 11 to 15 and page 18, lines 5 to 8 and lines 15 to 16; for example, capsule 8 and location 27b in Fig. 5), the bottom plug of the capsule is inserted into the corresponding housing of the bottom nozzle, so that the projecting peg lifts the valve of the bottom plug into an open position, and an inert gas under pressure is delivered into the inlet end portion of the channel in the top plug, so as to open the valve of the top plug and then fill the inside space of the capsule with inert gas, the water and the gas contained in the capsule being expelled through the channel in the bottom plug (for example, Substitute Specification page 6, lines 16 to 25 and page 18, lines 7 to 22; for example, bottom plug 9, capsule 8, opening 29, peg 31, valve 10, inner tube 15, valve 17, top plug 14 and bottom nozzle 21b in Figs. 4 and 5), the delivery of inert gas being stopped after the inside space of the capsule has been filled, so that the

closure valve of the top plug recloses, with the leaky fuel rod then being stored inside the capsule in an atmosphere of inert gas under pressure (for example, Substitute Specification page 6, lines 25 to 29 and page 18, lines 24 to 27; for example, capsule 8, closure valve 17 and top plug 14 in Fig. 3).

Independent claim 32 recites a method of packaging leaky fuel rods for transport and subsequent storage of at least 50 years (for example, Substitute Specification page 4, lines 6 to 15 and page 5, lines 6 to 7), each leaky fuel rod containing pellets of fuel material in tubular cladding and being closed at ends of the tubular cladding (for example, Substitute Specification page 9, lines 24 to 27; for example, fuel rod 6, tubular cladding 6a and closure plugs 7 in Fig. 1) and presenting a sealing defect (for example, Substitute Specification page 10, lines 1 to 8), each leaky fuel rod coming from at least one fuel assembly and being deposited in a first step underwater in a pool (for example, Substitute Specification page 10, lines 16 to 22; for example. pool 100 in Fig. 7), the method comprising: making available a plurality of capsules, each of the plurality of capsules for receiving one of the leaky fuel rods (for example, Substitute Specification page 10, lines 24 to 27), and each of the plurality of capsules including a tubular sheath and two end plugs (for example, Substitute Specification page 10, line 29 to page 11, line 4 and page 11, lines 24 to 25; for example, capsule 8, tubular body 8a, bottom plug 9 and top plug 14 in Figs. 2 and 3), at least one of the two end plugs being removable (for example, Substitute Specification page 11, lines 24 to 25), each of the plurality of capsules having a longitudinal axis (for example, Fig. 3); placing a loading structure in the pool (for example, Substitute Specification page 4, line 22 and page 16, lines 25 to 27; for example, structure 20 in Fig. 4), the loading structure having a plurality of locations, each location being capable of receiving one of the plurality of capsules so that the longitudinal axes of the plurality of capsules are in a vertical orientation (for example, Substitute Specification page 5, line 24 to page 6, line 2, page 8, lines 5 to 7 and page 14, lines 13 to 19; for example, structure 20, capsule 8, top nozzle 21a and bottom nozzle 21b in Fig. 4 and "array of locations" in Fig. 5), the loading structure having an open top end (for example, Substitute Specification page 4, lines 25 to 26 and page 13, lines 16 to 20; for example, Figs. 4 and 5); securing, on the open top end, a device for loading

(for example, page 15, lines 4 to 8; for example, guide and holder device 32placed in structure 20 in Figs. 4, 5 and 6) one of the leaky fuel rods into the at least one capsule, the device for loading having an opening (for example, page 15, lines 9 to 16; for example, openings 34a and b in Fig. 6) and a guide device capable of being placed at the opening (for example, Substitute Specification page 17, lines 5 to 9); inserting the leaky fuel rods in the pool one by one into empty ones of the plurality of capsules in the loading structure (for example, Substitute Specification page 4, lines 29 to 33, page 6, lines 34 to 37, page 8, lines 5 to 7 and page 17, lines 22 to 27), the inserting for each leaky fuel rod including: unscrewing one of the end plugs of a respective capsule of the plurality of capsules, the end plug being situated at a capsule top end (for example, Substitute Specification page 4, lines 36 to 37 and page 17, lines 13 to 16); placing the leaky fuel rod into the respective capsule via the guide device (for example, Substitute Specification page 5, lines 1 to 2 and page 17, lines 25 to 27); and screwing the one end plug at the top end of the capsule back into place (for example, Substitute Specification page 5, line 3 and page 18, lines 1 to 3); placing each capsule containing the leaky fuel rod in one of the locations of the loading structure (for example, Substitute Specification page 5, lines 4 to 5 and page 18, lines 5 to 8 and 29 to 30); and transporting and storing the leaky fuel rods inside the capsules placed in the loading structure (for example, Substitute Specification page 19, lines 8 to 10).

Independent claim 33 recites a method of packaging leaky fuel rods for transport and subsequent storage of at least 50 years (for example, Substitute Specification page 4, lines 6 to 15 and page 5, lines 6 to 7), comprising: depositing the leaky fuel rods in a pool (for example, Substitute Specification page 10, lines 16 to 22, for example pool 100 in Fig. 7); making available a plurality of capsules, each of the plurality of capsules for receiving one of the leaky fuel rods (for example, Substitute Specification page 10, lines 24 to 27), and each of the plurality of capsules including a tubular sheath and two end plugs (for example, Substitute Specification page 10, line 29 to page 11, line 4 and page 11, lines 24 to 25; for example, capsule 8, tubular body 8a, bottom plug 9 and top plug 14 in Figs. 2 and 3), at least one of the two end plugs being removable (for example, Substitute Specification page 11, lines 24 to 25), each of the plurality of capsules having a longitudinal axis (for example, Fig. 3); placing a loading structure in the pool

(for example, Substitute Specification page 4, line 22 and page 16, lines 25 to 27; for example, support structure 20 in Fig. 7), the loading structure having a plurality of locations, each location being capable of receiving one of the plurality of capsules so that the longitudinal axes of the plurality of capsules are in a vertical orientation (for example, Substitute Specification page 5, line 24 to page 6, line 2, page 8, lines 5 to 7 and page 14, lines 13 to 19; for example, structure 20, capsule 8, top nozzle 21a and bottom nozzle 21b in Fig. 4 and "array of storage locations" in Fig. 5), the loading structure having an open top end (for example, Substitute Specification page 4, lines 25 to 26 and page 13, lines 16 to 20; for example. Figs. 4 and 5); securing, on the open top end, a device for loading (for example, page 15, lines 4 to 8; for example, guide and holder device 32 placed in structure 20 in Figs. 4, 5 and 6) one of the leaky fuel rods into the at least one capsule, the device for loading having an opening (for example, page 15, lines 9 to 16; for example, openings 34a and b in Fig. 6) and a guide device capable of being placed at the opening (for example, Substitute Specification page 17, lines 5 to 9); inserting the leaky fuel rods in the pool one by one into empty ones of the plurality of capsules in the loading structure at a loading location of the plurality of locations (for example, Substitute Specification page 4, lines 29 to 33, page 6, lines 34 to 37, page 8, lines 5 to 7 and page 17, lines 22 to 27), the inserting for each leaky fuel rod including: unscrewing one of the end plugs of a respective capsule of the plurality of capsules, the end plug being situated at a capsule top end (for example, Substitute Specification page 4, lines 36 to 37 and page 17, lines 13 to 16); placing the leaky fuel rod into the respective capsule via the guide device (for example, Substitute Specification page 5, lines 1 to 2 and page 17, lines 25 to 27); and screwing the one end plug at the top end of the capsule back into place (for example, Substitute Specification page 5, line 3 and page 18, lines 1 to 3); moving each capsule containing the leaky fuel rod from the loading location to a different storage location of the plurality of locations (for example, Substitute Specification page 6, lines 11 to 15 and page 18, lines 5 to 8 and 29 to 30); and transporting and storing the leaky fuel rods inside the capsules while in the storage location (for example, Substitute Specification page 19, lines 8 to 10).

Dependent claim 34 recites the method as recited in claim 23 further comprising moving each of the capsules from the at least one loading location to a gas filling location of the plurality

of locations (for example, Substitute Specification page 14, lines 14 to 18, page 17, lines 25 to 27 and page 18, lines 5 to 9; for example locations 27a and b in Fig. 5), and filling an inside space of the capsule with an inert gas at the gas filling location (for example, Substitute Specification page 14, line 30 to page 15, line 2 and page 18, lines 15 to 19).

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 23 to 25, 30 and 31 were rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. Claims 23 to 25, 30 and 31 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 23, 30 to 32 and 34 were rejected under 35 U.S.C. §103(a) as being unpatentable over German Patent No. 196 40 393 A1 to Kraus et al. (hereinafter "Kraus"), in view of Applicant's Admitted Prior Art (Specification Page 1, hereinafter "AAPA"), Patent No. WO/2003/065380 A1 to Georgii (hereinafter "Georgii") and U.S. Patent No. 4,731,219 to Beneck et al. (hereinafter "Beneck"), or in the alternative over Kraus, in view of AAPA, Georgii, U.S. Patent No. 4,889,680 to Wachter (hereinafter "Wachter") and Beneck. Claim 33 was rejected under 35 U.S.C. §103(a) as being unpatentable over Kraus in view of AAPA, Georgii, Wachter and Beneck. Claim 24 was rejected as applied to claim 23 and further in view of JP Patent No. 2000111682A to Shomura et al. (hereinafter "Shomura").

7. ARGUMENTS

A. 35 U.S.C. §112 Rejections

Claims 23 to 25, 30 and 31 were rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement.

The Office Action asserts on page 2 that "the limitation 'moving each capsule'…'from the at least one loading location' is new matter because each capsule is only loaded at a single location as described in the specification as filed." This limitation is not new matter. Support for this limitation can be found in the Substitute Specification, for example, on page 16, lines 5 to 7,

and the Original Specification on page 14, lines 20 to 22, which teach enabling the capsules to be inserted into locations other than the locations 27a and 27b. Support can also be found, for example in the originally filed claims. Claim 1 as originally filed recites in part "taking the leaky rods one by one from intermediate storage means in which the leaky rods coming from at least one fuel assembly have been placed, and inserting them one by one into empty capsules in the loading structure (20), the capsules being in a vertical position in a loading location (27a) vertically beneath an opening (34)," and claim 5 which recites in part "the support structure (20) for capsules (8) containing defective fuel rods is constituted by a transport and/or storage container including at least one location for receiving at least one of a loading structure (20) and capsule (8)." This is also disclosed in page 6, lines 34 to 37 of the Substitute Specification and page 6, lines 16 to 19 of the Original Specification. It is clear to one of skill in the art, through reading the specification, that the inventor, at the time of the application was filed, had possession of the claimed invention.

Reversal of the rejections to claims 23 to 25, 30 and 31 under 35 U.S.C. §112, first paragraph, is respectfully requested.

Claims 23 to 25, 30 and 31 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Office Action asserts on page 3 that "the metes and bounds of the claimed invention are vague and ill-defined due to inadequate written support as a result of the introduction of new matter as explained above in section 2." The test for definiteness under 35 U.S.C. §112, second paragraph, is whether "those skilled in the art would understand what is claimed when the claim is read in light of the specification." *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1576, 1 USPQ2d 1081, 1088 (Fed. Cir. 1986). MPEP 2173.02. As discussed above, no new matter has been added. Written support is provided in the specification. One of skill in the art would clearly understand the claimed limitation.

Reversal of the rejections to claims 23 to 25, 30 and 31, under 35 U.S.C. §112, second paragraph, is respectfully requested.

B. 35 U.S.C. §103(a) Rejections

Claims 23, 30 to 32 and 34 were rejected under 35 U.S.C. §103(a) as being unpatentable Kraus, in view of AAPA, Georgii and Beneck, or in the alternative over Kraus, in view of AAPA, Georgii, Wachter and Beneck.

Kraus discloses "a sheath 8 …is located under water in a socket 40." See Translation, Page 9, lines 12 to 13. Socket bottom 41 has a feedthrough which leads to a hose 46. See Fig. 4. "[T]he water is suctioned out of the two cylinders 43 through the connecting line 46, after which the cylinders 43 are filled with air." See Page 12, last three lines.

Georgii discloses a concrete body container device.

Wachter discloses a fuel rod assembly 10 that can be stored in a storage pool. Wires 40 remove the fuel rods to store them in a compacted manner in a container 30. See col. 4, lines 16 to 68.

Beneck discloses a method and apparatus for compacting a bundle of fuel elements.

Claim 23 Argued Separately

Kraus is a special device used for making sure a single capsule is dry (see Page 3, first full paragraph of translation of Kraus). Individual capsules are placed in the socket 40 temporarily, dried, and sent off to a fuel element or to a reprocessing plant (see page 13, last two sentences of translation).

The loading structure of the present invention has a plurality of locations, including a loading location (see 27a of Fig. 5, and Substitute Specification at page 14, lines 13 to 18 for example), and such as a further storage location, where the capsule is moved to after being loaded at the loading location. See Substitute Specification at page 18, lines 29 to 30, for example.

Kraus clearly does not have such loading structure having a plurality of locations, nor does it desire them, since it uses a single socket 40 for individual processing of capsules. Nor does AAPA show a plurality of locations. Georgii also does not teach or disclose any such loading structure: Georgii at page 7, lines 5 to 9 describes that the inner vessels 11 are in a basin 24, and are only placed later in the asserted containers 10. See Fig. 3.

Wachter and Beneck, teach storage of fuel elements not in capsules, and both are for forming a more compacted unit. These thus would relate to the step of depositing leaky fuel rods in a pool, and to the limitation of claim 30 of an intermediate storage. They relate to storage prior to any encapsulation.

Thus none of the prior art, it is respectfully submitted, teaches or leads one of skill in the art in any way to modify socket 40 of Kraus to have a plurality of locations for individual capsules, together with its socket device. The socket device is not meant to be part of a storage unit.

There thus simply is no teaching in any of the prior art of the claimed language of moving each capsule containing the leaky fuel rod from the loading location to another location of the plurality of locations of the loading structure different from the loading location.
Nor does the Office Action address this actual claim language.

It is noted that page 9 of the Final Office Action seems to state that it would have been obvious in view of Beneck to "teach the lowering of fuel elements into quiver 46 whereupon they are rearranged into a closer configuration." However, this still does not address the claim language. To meet the claim language, the Kraus socket 40 would have to be part of an asserted loading structure of Beneck. There simply is no reason or teaching on any of the prior art to provide the actual Kraus socket into any loading structure, and certainly not one that then would be "transported" as also claimed. The Advisory Action asserts that "what needs to be learned from Beneck is the moving of the single fuel rods in capsule 7 within quiver 40." However, as stated above, there simply is no reason or teaching in any of the prior art to provide the actual Kraus socket into any loading structure, and certainly not one that then would be "transported" as also claimed.

In addition to the above, it is noted that the Final Office Action is in error for at least the following further reasons:

1. On page 4, the assertion that if a prior art structure is capable of performing the intended use, then it meets the claim, is ***clearly not applicable to method claims***. A method for beating eggs using a baseball bat could be patentable, and one key point of method claims is that the use of a structure in a new and nonobvious way

can be patentable. The Examiner takes this language from case law related to apparatus claims.

2. The combination with Georgii at page 7 is not understood, as the Georgii does not seek to have a loading location such as the socket of Kraus placed in its structure. It actually teaches away from such a combination, as it wants to be compact.

Reversal of the rejection to claims 23, 30, 31 and 34 is respectfully requested.

Claim 32 Argued Separately

With respect to claim 32, claim 32 recites "placing each capsule containing the leaky fuel rod in one of the locations of the loading structure; and transporting and storing the leaky fuel rods inside the capsules placed in the loading structure."

Kraus is a special device used for making sure a single capsule is dry (see Page 3, first full paragraph of translation of Kraus). Individual capsules are placed in the socket 40 temporarily, dried, and sent off to a fuel element or to a reprocessing plant (see page 13, last two sentences of translation).

The loading structure of the present invention has a plurality of locations, including a loading location (see 27a of Fig. 5, and Substitute Specification at page 14, lines 13 to 18 for example), and such as a further storage location, where the capsule is moved to after being loaded at the loading location. See Substitute Specification at page 18, lines 29 to 30, for example.

Kraus clearly does not have such loading structure having a plurality of locations, nor does it desire them, since it uses a single socket 40 for individual processing of capsules. Nor does AAPA show a plurality of locations. Georgii also does not teach or disclose any such loading structure: Georgii at page 7, lines 5 to 9 describes that the inner vessels 11 are in a basin 24, and are only placed later in the asserted containers 10. See Fig. 3.

Wachter and Beneck, teach storage of fuel elements not in capsules, and both are for forming a more compacted unit. These thus would relate to the step of depositing leaky fuel rods in a pool, and to the limitation of claim 30 of an intermediate storage. They relate to storage prior to any encapsulation.

Thus none of the prior art, it is respectfully submitted, teaches or leads one of skill in the art in any way to modify socket 40 of Kraus to have a plurality of locations for individual capsules, together with its socket device. The socket device is not meant to be part of a storage unit.

There thus simply is no teaching in any of the prior art of the claimed language of moving each capsule containing the leaky fuel rod from the loading location to another location of the plurality of locations of the loading structure different from the loading location.
Nor does the Office Action address this actual claim language.

It is noted that page 9 of the Final Office Action seems to state that it would have been obvious in view of Beneck to "teach the lowering of fuel elements into quiver 46 whereupon they are rearranged into a closer configuration." However, this still does not address the claim language. To meet the claim language, the Kraus socket 40 would have to be part of an asserted loading structure of Beneck. There simply is no reason or teaching on any of the prior art to provide the actual Kraus socket into any loading structure, and certainly not one that then would be "transported" as also claimed.

Reversal of the rejection to claim 32 is respectfully requested.

Claim 34 Argued Separately

In addition to the arguments presented above regarding independent claim 23, ***with respect to claim 34, the actual claim language is not addressed at Page 11 at the very top. The claim language requires*** "moving each of the capsules from the at least one loading location to a gas filling location of the plurality of locations, and filling an inside space of the capsule with an inert gas at the gas filling location." Under the Examiner's interpretation of using Kraus to meet this limitation, ***there is no moving from the loading location to a gas filling location. In Kraus the two locations are one and the same.***

Reversal of the rejection to claim 34 is respectfully requested.

Claim 33 Argued Separately

Claim 33 was rejected under 35 U.S.C. §103(a) as being unpatentable over Kraus in view of AAPA, Georgii, Wachter and Beneck.

With respect to claim 33, applicant first notes that the rejection seems to be predicated on some type of indefiniteness to claim 33 language. See Official Action, page 16 to 17: "Apart from difficulties..." However, no indefiniteness rejection with respect to claim 33 has been made in the Final Office Action.

Claim 33 in any event recites:

"moving each capsule containing the leaky fuel rod from the loading location to a different storage location of the plurality of locations; and

transporting and storing the leaky fuel rods inside the capsules while in the storage location."

The Office Action asserts on page 15, that "moving each capsule containing the leaky fuel rod from the loading location to a different storage location is met because the location of the quiver is not the same as the location of the container device 10 of Georgii." However, claim 33 recites moving each capsule from the loading location into another location of the same device, not into a different device such as Georgii. Furthermore, there is no reason or motivation for one of skill in the art to modify quiver 40 of Kraus to combine it with the shipping container of Georgii.

Kraus is a special device used for making sure a single capsule is dry (see Page 3, first full paragraph of translation of Kraus). Individual capsules are placed in the socket 40 temporarily, dried, and sent off to a fuel element or to a reprocessing plant (see page 13, last two sentences of translation).

The loading structure of the present invention has a plurality of locations, including a loading location (see 27a of Fig. 5, and Substitute Specification at page 14, lines 13 to 18 for example), and such as a further storage location, where the capsule is moved to after being loaded at the loading location. See Substitute Specification at page 18, lines 29 to 30, for example.

Kraus clearly does not have such loading structure having a plurality of locations, nor does it desire them, since it uses a single socket 40 for individual processing of capsules. Nor does AAPA show a plurality of locations. Georgii also does not teach or disclose any such loading structure: Georgii at page 7, lines 5 to 9 describes that the inner vessels 11 are in a basin 24, and are only placed later in the asserted containers 10. See Fig. 3.

Thus none of the prior art, it is respectfully submitted, teaches or leads one of skill in the art in any way to modify socket 40 of Kraus to have a plurality of locations for individual capsules, together with its socket device. The socket device is not meant to be part of a storage unit.

There thus simply is no teaching in any of the prior art of the claimed language of moving each capsule containing the leaky fuel rod from the loading location to a different storage location of the plurality of locations, nor would one of skill in the art have any reason or motivation to combine the socket of Kraus with the shipping container of Georgii.

Moreover, on Page 16, the Final Office action seems to be addressing claims 23 and 32, not claim 33. To the extent the claim language is similar, the response above with respect to claims 23 and 32 is incorporated.

Reversal of the rejection to claim 33 is respectfully requested.

Claim 24 Argued Separately

Claim 24 was rejected as applied to claim 23 and further in view of Shomura.

Claim 24 recites "wherein the loading structure comprises a handling top nozzle and a bottom nozzle both extending transversely, the nozzles being assembled to each other by longitudinally-extending tie-bars, together with a plurality of transversely-extending spacer plates distributed in the longitudinal direction of the loading structure and each comprising an array of openings, the array of openings including first openings serving to pass and hold a respective capsule, the array of openings also including second openings having engaged therein the tie-bars, the loading structure including a first location for loading capsules in a vicinity of a corner of a square-shaped cross-section of the loading structure."

The Final Office Action provides absolutely no motivation for combining Shomura and reversal for this reason alone is requested.

Reversal of the rejection to claim 24 is respectfully requested.

Claim 25 Argued Separately

With respect to claim 25, claim 25 is not addressed in any prior art rejection and allowance of claim 25 is respectfully requested.

CONCLUSION

It is respectfully submitted that the application is in condition for allowance. Favorable consideration of this appeal brief is respectfully requested.

Respectfully submitted,

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By: _____

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APPENDIX A:

PENDING CLAIMS 23 to 25 and 30 to 34 OF U.S.
APPLICATION SERIAL NO. 10/574,057

Claim 23 (previously presented): A method of packaging leaky fuel rods for transport and subsequent storage of at least 50 years, each leaky fuel rod containing pellets of fuel material in tubular cladding and being closed at ends of the tubular cladding and presenting a sealing defect, each leaky fuel rod coming from at least one fuel assembly and being deposited in a first step underwater in a pool, the method comprising:

making available a plurality of capsules, each of the plurality of capsules for receiving one of the leaky fuel rods, and each of the plurality of capsules including a tubular sheath and two end plugs, at least one of the two end plugs being removable, each of the plurality of capsules having a longitudinal axis;

placing a loading structure in the pool, the loading structure having a plurality of locations, each location being capable of receiving one of the plurality of capsules so that the longitudinal axes of the plurality of capsules are in a vertical orientation, the loading structure having an open top end;

securing, on the open top end, a device for loading one of the leaky fuel rods into the at least one capsule, the device for loading having an opening and a guide device capable of being placed at the opening;

inserting the leaky fuel rods in the pool one by one into empty ones of the plurality of capsules in the loading structure at at least one loading location of the plurality of locations, the inserting for each leaky fuel rod including: unscrewing one of the end plugs of a respective

capsule of the plurality of capsules, the end plug being situated at a capsule top end; placing the leaky fuel rod into the respective capsule via the guide device; and screwing the one end plug at the top end of the capsule back into place;

moving each capsule containing the leaky fuel rod from the at least one loading location to another location of the plurality of locations of the loading structure different from the at least one loading location; and

transporting and storing the capsules containing the leaky fuel rods.

Claim 24 (previously presented): The method according to claim 23, wherein the loading structure comprises a handling top nozzle and a bottom nozzle both extending transversely, the nozzles being assembled to each other by longitudinally-extending tie-bars, together with a plurality of transversely-extending spacer plates distributed in the longitudinal direction of the loading structure and each comprising an array of openings, the array of openings including first openings serving to pass and hold a respective capsule, the array of openings also including second openings having engaged therein the tie-bars, the loading structure including a first location for loading capsules in a vicinity of a corner of a square-shaped cross-section of the loading structure.

Claim 25 (previously presented): The method according to claim 24, wherein the loading structure further comprises a second location in which the bottom nozzle of the loading structure includes an opening for receiving a closure plug at the bottom end of the respective capsule, the location having placed therein a peg projecting into the loading structure, wherein the bottom

plugs and top plugs of the capsules are pierced axially by respective channels having respective channel-closure valves located therein and urged towards a closed position by respective helical springs, an open end of the channel in the top plug including an arrangement for connection to a duct for feeding inert gas, and wherein after a leaky fuel rod has been inserted in a capsule and the top plug has been screwed back onto the capsule in the loading structure first location, the capsule is transferred to the second location for filling with inert gas, the bottom plug of the capsule is inserted into the corresponding housing of the bottom nozzle, so that the projecting peg lifts the valve of the bottom plug into an open position, and an inert gas under pressure is delivered into the inlet end portion of the channel in the top plug, so as to open the valve of the top plug and then fill the inside space of the capsule with inert gas, the water and the gas contained in the capsule being expelled through the channel in the bottom plug, the delivery of inert gas being stopped after the inside space of the capsule has been filled, so that the closure valve of the top plug recloses, with the leaky fuel rod then being stored inside the capsule in an atmosphere of inert gas under pressure.

Claim 30 (previously presented): The method according to claim 23, wherein the leaky fuel rods coming from the at least one fuel assembly are placed in an intermediate storage arrangement before the inserting step.

Claim 31 (previously presented): The method according to claim 23, wherein the loading structure has the shape and the dimensions of one of the at least one fuel assemblies.

Claim 32 (previously presented): A method of packaging leaky fuel rods for transport and subsequent storage of at least 50 years, each leaky fuel rod containing pellets of fuel material in tubular cladding and being closed at ends of the tubular cladding and presenting a sealing defect, each leaky fuel rod coming from at least one fuel assembly and being deposited in a first step underwater in a pool, the method comprising:

making available a plurality of capsules, each of the plurality of capsules for receiving one of the leaky fuel rods, and each of the plurality of capsules including a tubular sheath and two end plugs, at least one of the two end plugs being removable, each of the plurality of capsules having a longitudinal axis;

placing a loading structure in the pool, the loading structure having a plurality of locations, each location being capable of receiving one of the plurality of capsules so that the longitudinal axes of the plurality of capsules are in a vertical orientation, the loading structure having an open top end;

securing, on the open top end, a device for loading one of the leaky fuel rods into the at least one capsule, the device for loading having an opening and a guide device capable of being placed at the opening;

inserting the leaky fuel rods in the pool one by one into empty ones of the plurality of capsules in the loading structure, the inserting for each leaky fuel rod including: unscrewing one of the end plugs of a respective capsule of the plurality of capsules, the end plug being situated at a capsule top end; placing the leaky fuel rod into the respective capsule via the guide device; and screwing the one end plug at the top end of the capsule back into place;

placing each capsule containing the leaky fuel rod in one of the locations of the loading structure; and

transporting and storing the leaky fuel rods inside the capsules placed in the loading structure.

Claims 33 (previously presented): A method of packaging leaky fuel rods for transport and subsequent storage of at least 50 years, comprising:

depositing the leaky fuel rods in a pool;

making available a plurality of capsules, each of the plurality of capsules for receiving one of the leaky fuel rods, and each of the plurality of capsules including a tubular sheath and two end plugs, at least one of the two end plugs being removable, each of the plurality of capsules having a longitudinal axis;

placing a loading structure in the pool, the loading structure having a plurality of locations, each location being capable of receiving one of the plurality of capsules so that the longitudinal axes of the plurality of capsules are in a vertical orientation, the loading structure having an open top end;

securing, on the open top end, a device for loading one of the leaky fuel rods into the at least one capsule, the device for loading having an opening and a guide device capable of being placed at the opening;

inserting the leaky fuel rods in the pool one by one into empty ones of the plurality of capsules in the loading structure at a loading location of the plurality of locations, the inserting for each leaky fuel rod including: unscrewing one of the end plugs of a respective capsule of the

plurality of capsules, the end plug being situated at a capsule top end; placing the leaky fuel rod into the respective capsule via the guide device; and screwing the one end plug at the top end of the capsule back into place;

moving each capsule containing the leaky fuel rod from the loading location to a different storage location of the plurality of locations; and

transporting and storing the leaky fuel rods inside the capsules while in the storage location.

Claim 34 (previously presented): The method as recited in claim 23 further comprising moving each of the capsules from the at least one loading location to a gas filling location of the plurality of locations, and filling an inside space of the capsule with an inert gas at the gas filling location.

APPENDIX B

Evidence Appendix under 37 C.F.R. §41.37(c)(ix):

No evidence pursuant to 37 C.F.R. §§1.130, 1.131 or 1.132 and relied upon in the appeal has been submitted by appellants or entered by the examiner.

APPENDIX C

Related proceedings appendix under 37 C.F.R. §41.37(c)(x):

As stated in "2. RELATED APPEALS AND INTERFERENCES" of this appeal brief, appellants, their legal representatives, and assignee are not aware of any appeal or interference that directly affects, will be directly affected by, or will have a bearing on the Board's decision in this appeal.